

Remarks

Claims 1-9 were previously pending in the subject application. By this Amendment, claims 1 and 5 have been amended and claims 6-9 have been cancelled. Accordingly, claims 1-5 are before the Examiner for consideration. In view of the remarks and amendments set forth herein, favorable consideration of the claims now presented is earnestly solicited.

In order to expedite prosecution, the claims have now been amended to lend greater specificity and clarity to the claimed subject matter. These amendments are made solely for the purpose of expediting prosecution and should not be taken to indicate the applicants' agreement with, or acquiescence in, the rejections of record.

Claims 1-9 have been rejected under 35 U.S.C. §112, first paragraph. The applicants respectfully traverse this grounds for this rejection because the specification provides sufficient description to enable the skilled artisan to make and use the invention commensurate in scope with the claims. However, as noted above, the claims have been amended to clarify the scope of the claimed subject matter. In particular, claim 1 has been amended to clarify that compounds of both formulas 2 and 3 are present in the composition and claim 5 has been amended to clarify the volume percent ratio of formula 1 to formula 2.

Claims 1-7 and 9 have been rejected under 35 U.S.C. §102(b) as being anticipated by Kita *et al.* (JP 10-112335), or in the alternative, under 35 U.S.C. §103(a) as obvious over Kita *et al.* in view of the Merck Chemical Database. The applicants respectfully traverse these grounds for rejection because the Kita *et al.* reference does not disclose or suggest the advantageous compositions of the current invention. Specifically, the Kita *et al.* reference does not disclose a composition having the ratio of a fluorobenzene (FB) component to a carbonic acid ester (CE) component as claimed by the current applicants.

Please note that the Kita *et al.* reference discloses an electrolyte solution wherein 0.1 to 10 *weight part* of fluorobenzene is present together with 100 *weight part* of a *solvent* to make the electrolyte solution. Thus, Kita *et al.* specifies the amounts of the components in weight part instead of weight percent. More specifically, the amounts of the components in the claims of Kita *et al.* are

specified as parts by weight with the second number being the parts of solvent (not solution). See, for example, the portion of the Kita *et al.* abstract entitled "SOLUTION."

For illustration, assume that 10 g (10 weight part) of monofluorobenzene is used by Kita *et al.* as the fluorocarbon component and 100 g (100 weight part) of dimethyl carbonate (DMC) or ethylene carbonate (EC) is used as the solvent for the electrolyte solution. In this scenario, there would be 110 g of solution. Given that the densities of FB, DMC and EC are 1.03 g/cm<sup>3</sup>, 1.07 g/cm<sup>3</sup>, and 1.34 g/cm<sup>3</sup>, respectively, the FB and CE weight parts can be converted into volumetric percentages as follows:

First, to calculate the volumes of the various components:

$$\text{Volume of FB} = \frac{10 \text{ g}}{1.03 \text{ g/cm}^3} = 9.7 \text{ cm}^3$$

$$\text{Volume of DMC} = \frac{100 \text{ g}}{1.07 \text{ g/cm}^3} = 93.45 \text{ cm}^3$$

$$\text{Volume of EC} = \frac{100 \text{ g}}{1.34 \text{ g/cm}^3} = 74.65 \text{ cm}^3$$

Thus, if DMC is used as the solvent for the electrolyte solution, then the volume percent of FB would be calculated as follows:

$$\text{Volume \% FB} = \frac{\text{volume of FB}}{\text{volume of solution}} = \frac{9.7 \text{ cm}^3}{9.7 \text{ cm} + 93.45 \text{ cm}^3} = 9.4 \text{ vol \%}$$

Similarly, if EC is used as the solvent for the electrolyte solution, then the volume percent of FB would be:

$$\text{Volume \% FB} = \frac{\text{volume of FB}}{\text{volume of solution}} = \frac{9.7 \text{ cm}^3}{9.7 \text{ cm}^3 + 74.65 \text{ cm}^3} = 11.5 \text{ vol \%}$$

As can be seen from these calculations, the resulting volume percents of FB are 9.4 vol%

(when DMC is the solvent) and 11.5 vol% (when CE is the solvent).

In contrast, the current applicants are claiming a range where the least volume of FB is expressed as follows:

12.5 FB : 87.5 CE

This ratio corresponds, of course, to 12.5 vol % FB :

$$\frac{12.5}{12.5 + 87.5} = 0.125 = 12.5\%$$

Thus, the highest volume percent of Kita *et al.* (11.5 vol. %) is lower than the lowest volume percent (12.5 %) claimed by the current applicants.

It is a basic premise of the Patent Law that, to anticipate, a single reference must, within its four corners, disclose all of the limitations of the claimed invention. In *Lindemann v. American Hoist and Derrick Co.*, 221 USPQ 481 (Fed. Cir. 1984), the court stated:

Anticipation requires the presence in a single prior art reference, disclosure of each and every element of the claimed invention, arranged as in the claim. *Connell v. Sears Roebuck and Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983); *SSIH Equip. S.A. v. USITC*, 718 F.2d 365, 216 USPQ 678 (Fed. Cir. 1983). In deciding the issue of anticipation, the [examiner] must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference. *SSIH, supra*; *Kalman [v. Kimberly-Clarke]*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983)] (emphasis added). 221 USPQ at 485.

In *Dewey & Almy Chem. Co. v. Mimex Co.*, Judge Learned Hand wrote:

No doctrine of the patent law is better established than that a prior patent . . . to be an anticipation must bear within its four corners adequate directions for the practice [of the subsequent invention] . . . if the earlier disclosure offers no more than a starting point . . . if it does not inform the art without more how to practice the new invention,

it has not correspondingly enriched the store of common knowledge, and it is not an anticipation. 124 F.2d 986, 990; 52 USPQ 138 (2nd Cir. 1942).

As discussed above, the Kita *et al.* reference does not disclose a composition having the ratio of a fluorobenzene component to a carbonic acid ester component as claimed by the present invention. The ratio of these components is unique to the present invention and is not within the ranges described by Kita *et al.* Accordingly, the applicants respectfully submit that the current claims are not anticipated by the Kita *et al.* disclosure and the applicants respectfully request reconsideration and withdrawal of the rejection under 25 U.S.C. §102.

With regard to obviousness, Kita *et al.* disclose that using a greater amount of the FB than its upper limit (10 weight part) may deteriorate the properties of the electrolytic battery cell (column 11). In stark contrast, the present invention was made based on the surprising finding that a relatively large amount of fluorobenzene is advantageous for improving low temperature performance, cell life, and high-temperature dischargeability of a electrolyte solution. Accordingly, the Kita *et al.* reference teaches away from the claimed invention.

Thus, the Kita *et al.* reference lacks any suggestion of a composition having a fluoro-aromatic volume ratio in the range disclosed in the present invention. Nor is there any motivation to modify Kita *et al.* to arrive at the current invention.

A finding of obviousness is proper only when the prior art contains a suggestion or teaching of the claimed invention. Here, the Kita *et al.* reference does not contain a suggestion of the current invention. It is only the applicants' disclosure that provides such a teaching, and the applicant's disclosure cannot be used to reconstruct the prior art for a rejection under §103. This was specifically recognized by the CCPA in *In re Spinnoble*, 56 CCPA 823, 160 USPQ 237, 243 (1969):

The Court must be ever alert not to read obviousness into an invention on the basis of the applicant's own statements; that is we must review the prior art without reading into that art appellant's teachings. *In re Murray*, 46 CCPA 905, 268 F.2d 226, 112 USPQ 364 (1959); *In re Sprock*, 49 CCPA 1039, 301 F.2d 686, 133 USPQ 360 (1962). The issue, then, is whether the teachings of the prior art would, in and of themselves and without the benefits of appellant's disclosure, make the invention as a whole, obvious. *In re Leonor*, 55 CCPA 1198, 395 F.2d 801, 158 USPQ 20 (1968). (Emphasis in original)

The mere fact that the purported prior art could have been modified or applied in a manner to yield the applicant's invention would not have made the modification or application obvious unless the prior art suggested the desirability of the modification. *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Moreover, as expressed by the CAFC, to support a §103 rejection, "[b]oth the suggestion and the expectation of success must be founded in the prior art . . . ." *In re Dow Chemical Co.*, *supra* at 1531. One finds neither in *Kita et al.* in support of a §103 rejection.

The Merck reference does not cure the aforementioned defects of the *Kita et al.* reference.

Therefore, a person skilled in the art, having reviewed the *Kita et al.* reference, would not have been motivated to increase the amount of FB to that which is used in the subject invention with an expectation of achieving the highly-desirable and unexpected results of the claimed invention. Accordingly, the applicants respectfully request reconsideration and withdrawal of the rejections set forth under 35 U.S.C. §103.

In view of the foregoing remarks and the amendment above, the applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

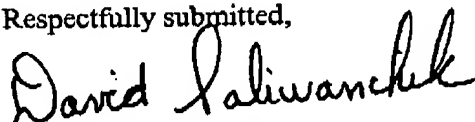
The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

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The applicant also invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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